SOME NOMENCLATORIAL PROBLEMS IN THE GENUS XYLOCOPA LATREILLE

(Hymenoptera: Apoidea)

PAUL D. HURD, JR.
University of California, Berkeley

A sound nomenclatorial foundation is a fundamental and an absolutely essential requisite for any well-executed taxonomic study. Obviously, it follows that any investigation dependent upon this foundation can only reflect it. Consequently, it is incumbent on those individuals providing these nomenclatorial bases to thoroughly, albeit exhaustively, investigate each nomenclatorial proposal before it is made. An investigator who fails to recognize or even consider the eventual ramifications within the sphere of knowledge that his proposal may have, clearly demonstrates a genuine lack of concern for future endeavors. It should be remembered that in the final analysis a name serves as a basis for the accumulation of information. Intelligent progress depends on this association and moreover demands it. Inattention to these matters, for whatever reason, not only hinders and confuses progress but invites such poignantly critical views as those expressed by Stärcke (1953) in his satirical essay on nomenclature.

An examination of the literature pertaining to the members of the genus *Xylocopa* Latreille (including *Mesotrichia* Westwood) reveals that there have been more than 700 names applied which involve a rather considerable bibliographic history. A number of nomenclatorial problems require attention and this opportunity is taken so as to facilitate their handling in a forthcoming paper. Since the number of homonymic names applied in the genus is relatively great, a listing of these is presented in summary form. In view of the uncertain zoological status of *Mesotrichia* Westwood (present studies tend to support the view that it is an African subgenus of *Xylocopa* containing less than a dozen species) no nomenclatorial changes affecting the names proposed in *Mesotrichia* are made.

I am indebted to Dr. M. A. Lieftinck, Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands for reviewing the manuscript and offering particularly valuable advice.

The following name changes are effected for currently existing primary homonymic names which represent bona fide (i.e.

zoologically valid) members of the genus *Xylocopa* Latreille:

Xylocopa nigrella Hurd, nom. nov.

Xylocopa nigrella Hurd, *nomen novum pro Xylocopa caffra nigrescens* Maidl, 1912, Ann. K. K. Naturhist. Hofmus., Wien, 26: 283, 330 ("... 2 ♂, das eine aus Mikindani . . ., das andere aus W.–Usambara . . ."), *nec Xylocopa aestuans* var. *nigrescens* Friese, 1901, Die Bienen Europa's, 6: 227 (female, "Borneo"), *nec Xylocopa sauteri* var. *nigrescens* Friese, 1910, Verhandl. der K.K. Zool.–Bot. Gesellsch., 60: 410 (male, "Formosa").

Since Maidl (1912:283) did not select one of the two males as the holotype, I designate his first cited male (Mikindani, [Tanganyika Territory]) to serve this purpose. *X. nigrella*, while clearly a member of the *Xylocopa caffra* (Linnaeus) group, is a distinct species assignable to the subgenus *Koptortosoma* Gribodo.

I have been unable to determine satisfactorily the zoological status of *Xylocopa aestuans* var. *nigrescens* Friese which was described from "Borneo." The *Xylocopa* of Borneo (including Sarawak) are rather poorly known. Apart from the description of several new taxa, its carpenter bee fauna has been investigated only coincidental with taxonomic studies of other geographic areas. From the description afforded by Friese (1901:227) it seems very improbable that this carpenter bee is to be associated with *X. aestuans* (Linnaeus). Its correct status, however, must await future studies.

It should be noted that the Sarawak *Xylocopa caerulea* var. *viridis* Meade-Waldo (1916:465) is preoccupied by *X. viridis* Smith (1854:360) from Brazil. Dr. M. A. Lieftinck informs me that *viridis* Meade-Waldo is correctly placed as a color variety of *X. (Cyaneoderes) caerulea* (Fabricius), a position also held by Maa (1939:94,95). Since Van der Vecht (1953:67) has recognized a "local form" or subspecies of *X. caerulea* from Bangka Island it seems altogether probable that the preoccupied *viridis* Meade-Waldo may prove to be a subspecies and accordingly is renamed.

Xylocopa caerulea meade-waldoi Hurd, nom. nov.

Xylocopa caerulea meade-waldoi Hurd, *nom. novum pro Xylocopa caerulea* var. *viridis* Meade-Waldo, 1916, Ann. Mag. Nat. Hist. (8) 17:465 (female, "Sarawak: Kuching"), *nec Xylocopa viridis* Smith, 1854:360, (male, "Hab. Brazil (Rio Tapajos)").

Xylocopa isabelleae Hurd, nom. nov.

Xylocopa isabelleae Hurd, *nomen novum pro Xylocopa eximia* Friese, 1908, Deutsche Ent. Zeitschr. p. 569 (female, "von Ikutha, 1000 m, Brit.

Ostafrika"), *nec Xylocopa eximia* Pérez, 1901, Actes Soc. Linn. Bordeaux, 56 (ser. 6, vol. 6): 87–88 (female, "Bolivie").

This species, which I take pleasure in dedicating to my wife Grace Isabelle, belongs to the subgenus *Koptortosoma* and is apparently related to *Xylocopa lateritia* Smith, 1854:346, a species originally described from the "Isle of Johanna (Mozambique)." The Neotropical species, *Xylocopa eximia* Pérez, 1901:87 is a member of the subgenus *Neoxylocopa* Michener and is related to species of the "*similis* group" (Moure, 1949:455–458).

Resurrection from synonymy of *Xylocopa ocularis* Pérez, 1901 is necessitated by the discovery that the Lesser Sunda Islands *Xylocopa dimidiata* Lepeletier, 1841 is a primary homonym of the earlier described Neotropical *X. dimidiata* Latreille, 1809.

XYLOCOPA OCULARIS Pérez, new status

Xylocopa dimidiata Lepeletier, 1841, Histoire naturelle des insectes. Hyménoptères, 2:199 (female, "Ile de Timor"), *nec* Latreille, 1809:95. *New Synonymy.*

Xylocopa ocularis Pérez, 1901, Actes Soc. Linn. Bordeaux, 56 (ser. 6, vol. 6):62–63 (female, "Timor").

For some curious reason the work of Latreille (1809), in which two new species of *Xylocopa* (*X. chrysoptera*, p. 93 and *X. dimidiata*, p. 95) were described, appears not to have been directly consulted by specialists of this group, except by Pérez (1901:71–73), since the time of Smith (1874:287). If Cockerell (1907:228) had done so he most assuredly would not have proposed *Xylocopa batesi* under the circumstances that: "*X. dimidiata* Lep. is from Timor; . . . *X. dimidiata* Smith, Trans. Ent. Soc. Lond., 1874, p. 287, from Ega on the Amazons, may take the name *X. batesi*, n. n.". In any event *Xylocopa dimidiata* Latreille, 1809:95 preoccupies *X. dimidiata* Lepeletier, 1841:199 and since both are zoologically valid members of the genus *Xylocopa* Lepeletier's preoccupied name should be replaced with *Xylocopa ocularis* Pérez, 1901:62, which has been shown by Van der Vecht (1953:68) to be equivalent zoologically to it. Lieftinck (1955:25–27) has treated this species in some detail and has provided an excellent illustration of the male genitalia.

Certain matters connected with the nomenclature of *Koptortosoma* Gribodo and *Schönherria* Lepeletier require attention if the manifold taxonomic problems associated with these cate-

gories are to be cogently pursued. Toward achieving that end the following is offered as at least a partial solution of this situation.

Subgenus KOPTORTOSOMA Gribodo

Koptortosoma Gribodo, 1894, Bull. Soc. Ent. Italiana, 26:271 (type: *Koptortosoma* gabonica Gribodo, 1894:272 designated by Sandhouse, 1943, Proc. U. S. Natl. Mus., 92:561).

Koptorthosoma Dalla Torre, 1896, Cat. Hymen., 10:202 (emendation *pro Koptortosoma* Gribodo, 1894:271).

Coptorthosoma Pérez, 1901, Actes Soc. Linn. Bordeaux, 56 (ser. 6, vol. 6): 3 (emendation *pro Koptortosoma* Gribodo, 1894:271 and *Koptorthosoma* Dalla Torre, 1896:202.).

Orbitella Ma[a], 1938, Rec. Indian Mus., 40:270, 305 (type: *Xylocopa confusa* Pérez, 1901:39, 57), *nom. praeocc., nec Orbitella* Douvillé, 1915.

Maiella Michener, 1942, Jour. New York Ent. Soc. 50:282, *nom. nov. pro Orbitella* Ma[a], 1938, *nec Orbitella* Douvillé, 1915 = *Coptorthosoma* Pérez, 1901, *teste* Maa, 1954, Vidensk. Meddel. Dansk Naturhist. For. Kobenhavn, 116:192; zoological status yet to be determined, *teste* Lieftinck, 1957, Nova Guinea, new ser., 8(2):325.

Euryapis Sandhouse, 1943, Proc. U. S. Natl. Mus., 92 (3156):551, *nom. nov. pro Orbitella* Ma[a], 1938, *nec* Douvillé, 1915, antedated by *nom. nov. Maiella* Michener, 1942:282, q. v.

As noted above, Sandhouse (1943:561) designated *Koptortosoma gabonica* Gribodo (1894:272) as the type of *Koptortosoma* Gribodo. Cockerell (1930:299–300) in his comment concerning "*Mesotrichia stanleyi* (LeVeque)" states: "This is undoubtedly the male described as *M. gabonica* (Gribodo); but the female of *gabonica*, first described, must stand as the type and I am not sure that the sexes are correctly associated." Following this action any interpretation to determine the zoological status of *Koptortosoma* Gribodo must be founded first upon the characteristics of the Cockerell designated lectotype (female) of *Koptortosoma gabonica* Gribodo.

Most assuredly the emendations *Koptorthosoma* Dalla Torre and *Coptorthosoma* Pérez were unnecessarily proposed for *Koptortosoma* Gribodo. In this connection, Dr. M. A. Lieftinck (*in litt.*) points out: "I can not see why these emendations should be accepted, since *Koptortosoma* is a validly proposed name, not a lapsus calami, and Gribodo even gave an explanation of the name, leaving no rights to an emendation."

The zoological status of the subgenus *Koptortosoma*, which currently embraces a large number of species (approximately 215 names applied) chiefly distributed in the Ethiopian, Oriental,

and Australo-Papuan Regions, cannot be satisfactorily determined until the question of its correct type species is established. Vitzthum (1930:314ff) concludes that the type of *Koptortosoma* Gribodo, 1894:271 is *Xylocopa aestuans* (Linnaeus), 1758:579 (one of the several species included by Gribodo in his original proposal), but states that it really doesn't matter (p. 315) since the Oriental and African forms agree in general characteristics. Vitzthum redefines the subgenus largely by the addition of a geographical qualification so as to exclude certain New World species which would fit Gribodo's original diagnosis and further by a statement of the mites (*Dolaea*, currently *Dinogamasus*) intimately associated with these Old World carpenter bees. As Vitzthum *(ibid.)* so appropriately declares, recognition of *Xylocopa aestuans* (Linnaeus) as the type species presents certain difficulties because of the inexact type locality given by Linnaeus for *X. aestuans, viz.*, "*Habitat in* calidis *regionibus.*"

Obviously, if Vitzthum's type designation of *Xylocopa aestuans* (Linnaeus) is construed as valid and therefore takes precedence over that (*Koptortosoma gabonica* Gribodo) later provided by Sandhouse (1943:561) it appears to me that unnecessary complications are introduced into an already confounded situation. In view of this it seems to me that greater uniformity and less confusion would result if *Koptortosoma* Gribodo with *Koptortosoma gabonica* Gribodo as its type species be rigidly accepted.

Not infrequently *Mesotrichia* Westwood (1838:112) has been used interchangeably with and sometimes to supplant *Koptortosoma* Gribodo (including also its variant spellings). Cockerell (1906:364) concluded that it is sufficiently distinct from *Xylocopa* to be maintained as a genus and he regarded "*Koptorthosoma*" as a subgenus of it. In his subsequent papers, as well as those of his pupil Miss Norma LeVeque, *Mesotrichia* was consistently accorded generic status and consequently all those species described or assigned to *Koptortosoma* were included in it. Maa (1940: 136–137) has discussed the scope and status of *Mesotrichia* and "*Coptorthosoma*" and more recently (Maa, 1954:192) indicates that *Mesotrichia* is probably to be recognized as an independent genus. Maa *(ibid.,)* also indicates that the subgenus *Platynopoda* Westwood possibly also is to be

removed from the genus *Xylocopa* and accorded generic status.

My present investigations, however, tend to support a classification wherein *Koptortosoma* Gribodo, *Mesotrichia* Westwood, and *Platynopoda* Lepeletier are considered as subgenera of the genus *Xylocopa*. This view is supported by the existence of intermediate evolutionary units, many of which already have been characterized as subgenera, which serve to interconnect and emphasize the relationships existing within the genus *Xylocopa*. In this arrangement *Mesotrichia* Westwood embraces less than a dozen Ethiopian species typified by *Xylocopa torrida* (Westwood).

Subgenus SCHÖNHERRIA Lepeletier

Schönherria Lepeletier, 1841, Histoire naturelle des insectes. Hyménoptères, 2:207 (type *Xylocopa (Schönherria) micans* Lepeletier, 1841:208 designated by Sandhouse. 1943, Proc. U. S. Natl. Mus., 92:598).

Maa (1954:192) has incorrectly stated that Sandhouse (1943:598) designated *Apis latipes* Drury as the type species of *Schönherria* Lepeletier. Sandhouse (1943:529) did, however, designate that species as the type species of *Audinetia* Lepeletier and consequently *Audinetia* and not *Schönherria*, as he stated, is the "isogenotypic" synonym of the earlier proposed *Platynopoda* Westwood.

Since Lepeletier and Serville (1828) founded their Australian carpenter bee genus *Lestis* on specimens contained in the "... cabinet du Roi ..." (p. 799) (and not on the Fabrician type of *Apis muscaria*) and moreover misidentified their specimens as constituting the sexes of *Centris muscaria* (Fabricius) [i.e. *Apis muscaria* Fabricius, 1775, = *Xylocopa muscaria* (Fabricius), *teste* Smith, 1854:364, and a recent examination of the type by Padre J. S. Moure who finds it to be a South American *Xylocopa* assignable to the subgenus *Schönherria* and is not from "Habitat in nova Hollandia" as Fabricius (1793:339) subsequently gave as the type locality], a petition has been submitted to the International Commission on Zoological Nomenclature by Dr. C. D. Michener and the author requesting that the name *Lestis* be preserved for the Australian bees for which Lepeletier and Serville intended to provide a generic name. It seems almost unnecessary to mention the confusion that would result if it were necessary to transfer under the Rules of Zoological Nomenclature the name *Lestis* from these

Australian carpenter bees and apply it to the American carpenter bees belonging to the subgenus *Schönherria* Lepeletier.

At this writing no less than 25 names are involved in homonymic conflicts. All except three of the combinations are the result of primary homonymy involving members zoologically assignable to the genus *Xylocopa*. The exceptions are cases of secondary coexistent homonymy which have been occasioned by reasons of change in zoological generic assignment. Fortunately the preponderance of names applied in the genus *Xylocopa* has provided a sufficient number of available synonyms which serve to replace many of these. For some strange reason both Friese and Vachal (see below) appear to have proposed anew names previously so proposed by them. Indeed, it appears that most, if not all, of these double proposals are absolute synonyms as well as homonyms of the earlier names in question. It must be recognized, however, that since differing type locality statements are offered by these authors for each of their conflicting homonymic pairs an element of doubt exists concerning the synonymical equivalency of the names involved. Final solution of this problem must rest with an examination of the types concerned.

The following listing presents a summary of the homonymic conflicts known to exist in the genus *Xylocopa*. Those names which are now regarded as established synonyms or renamed homonyms are italicized. Superimposed on the list of names are the pertinent bibliographic references together with a statement of the type locality as given by its author, and in the case of synonyms or renamed homonyms an indication of its current taxonomic status.

HOMONYMIC COMBINATIONS IN THE GENUS XYLOCOPA LATREILLE

albohirta Friese, 1911:687 ("1 ♀ vom südlichen Kongogebiet").

albohirta Friese, 1922:7 ("♀ von Katanga (Kongo), Westafrika"), ? = albohirta Friese, 1911:687.

caerulea (Fabricius), 1804:345 ("Habitat in nova Caledonia", ♀), locality erroneous, *teste* Cockerell, 1911:178.

caerulea Illiger, 1806:150 ("3. *Xylocopa caerulea* Nob. Brasilien. Sie ist um die Hälfte kleiner als *Violacea*, schmaler und unterscheidet sich von ihr durch einen Leib."), ? = lucida Smith, 1874:290; *nec.* "s. descr." as stated by Dalla Torre, 1896:207.

capensis Spinola. 1838:519 ("Cap de Bonne–Esperance", ♂).

capensis Lepeletier, 1841:179 ("Cap de Bonne Esperance", ♂ ♀), = capitata Smith, 1854:348. *New synonymy.*

capensis Enderlein, 1903:56 ("Capland, 4♀. Port Natal, 1♀"), renamed enderleini Schulz, 1906:251.

dimidiata Latreille, 1809:95 ([South America, ♀]).

dimidiata Lepeletier, 1841:199 ("Ile de Timor", ♀), = ocularis Pérez, 1901:62, *ante* p. 137.

eximia Pérez, 1901:87 ("Bolivie", ♀).

eximia Friese, 1908:569 ("von Ikutha, 1000 m, Brit. Ostafrika", ♀), renamed isabelleae Hurd, *ante* p. 136.

fasciata Lepeletier, 1841:202 ("Du Brésil", ♂), = frontalis (Olivier), 1789:64, *teste* Smith, 1874:284.

fasciata Eversmann, 1854:198 ("Vorkommen: die südlichen Kirgisensteppen"), renamed zonata Alfken, 1930:78, recently assigned to the genus *Proxylocopa*, *teste* Maa, 1954:194.

femorata Fabricius, 1804:339 ("Habitat in Algier", ♂), = violacea (Linnaeus), 1758:578, *teste* Maa, 1954:217; Dalla Torre & Friese, 1894: 56; Friese, 1901:202, *et al.*

femorata Smith, 1874:262 ("*Hab.*–Algeria", ♂), *nomen novum pro grisescens* Smith, 1854:347, *nom. praeocc., nec* grisescens Lepeletier, 1841:178, renamed *commixta* Dalla Torre and Friese, 1894:56, = *cirtana* Lucas, 1846:167, *teste* Friese, 1901:218, = amedaei Lepeletier, 1841:188, *teste* Vachal, 1899:109.

frontalis (Olivier), 1789:64 ("Elle se trouve à Cayenne", ♀).

frontalis Reiche and Fairmaire, 1847:455 ("[Abyssinie]", ♂♀), renamed carinata Smith, 1874:265.

fulvopilosa Friese, 1909:230 ("Kamerun, Togo", ♂ ♀).

fulvopilosa Friese, 1922:7 ("♂ ♀ von Kamerun, ♀ Bipindi"), ? = fulvopilosa Friese, 1909:230.

grisescens Lepeletier, 1841:178 ("Patrie inconnue", ♀, = "*Hab.*–Brazil"), *teste* Smith, 1874:286.

grisescens Smith, 1854:347 ("Hab. Algeria", ♂), renamed *femorata* Smith, 1874:262, *nom. praeocc., nec* Lepeletier, 1841:178, renamed *commixta* Dalla Torre and Friese, 1894:56, = *cirtana* Lucas, 1846:167, *teste* Friese, 1901:218, = amedaei Lepeletier, 1841:188, *teste* Vachal, 1899:109.

namaquaensis Friese, 1911:687 ("2♂ von Ookiep (Kl. Namaland)").

namaquaensis Friese, 1922:7 ("♂ von O'okiep (Kl. Namaland), Willowmore, Südafrika"), ? = namaquaensis Friese, 1911:687.

nigrescens Friese, 1901:227 ("Borneo", ♀).

nigrescens Friese, 1910:410 ("♂ [Formosa]"), = sauteri Friese, 1910: 409, *teste* Yu, 1954:2.

nigrescens Maidl, 1912:283 (" . . . 2♂, das eine aus Mikindani [herewith selected as the holotype], das andere aus W.–Usambara, [both localities in east Africa]"), renamed nigrella Hurd, *ante* p. 136.

nigriceps Friese, 1903:207 ("1♀ von Sierra Leone").

nigriceps Friese, 1922:8 ("♀ von Sierra Leone [herewith selected as the holotype] von der Elfenbeinküste und auch von Usambara, also westafrika und Ostafrika"), = nigriceps Friese, 1903:207, *teste*

Hedicke, 1923:431.

nigriceps Friese, 1922:9 ("♀ von Dibongo in Südkamerun, Westafrika"), renamed dibongoana Hedicke, 1923:431.

olivacea (Fabricius), 1787:300 ("Habitat in Sierra Leon, Africae", ♂), = caffra (Linnaeus), 1767:959, *teste* LeVeque, 1928:3.

olivacea Spinola, 1838:519 ("Indes–Orientales et Java", ♂), ? = confusa Pérez, 1901:39, 57, *teste* Maa, 1938:313.

penicillata Maidl, 1912:308 ("1♂ aus Annam (Phoc Son)"), = phalothorax Lepeletier, 1841:194, *teste* Maa, 1940:131.

penicillata Enderlein, 1913:169 ("Columbien, 1♂"), renamed maidli Maa, 1940:132.

quadrimaculata Meunier, 1892:64 ("Quito, Capture à 2000 meters de hauteur", ♂).

4–[*i.e. quadri–*] *maculata* Friese, 1916:328 ("♂ ♀ von Mexiko (Jacubaya) [=Tacubaya!, D. F. México; ♂ selected as the holotype], ♀ von America centr. (Chiriqui)"), = azteca Cresson, 1878:228. *New synonymy*

rejecta Vachal, 1910:320 ("Vu quatre ♀ et deux ♂ de l'Afrique orientale anglaise (Nairobi, Escarpment)").

rejecta Vachal, 1922:987 ("Afrique Orientale Anglaise.–Naivasha; Nairobi et Escarpment, 4♀; Escarpment aout, 2♂"), ? = rejecta Vachal, 1910:320.

rufotegularis Cockerell, 1947:144 (" . . . Feira, N. Rhodesia . . .", ♂).

rufotegularis Michener, 1954:157 ("*Canal Zone:* Culebra–Arraiján trail", ♀ [type], ♂) = ecuadorica Cockerell, 1909:403. *New synonymy*

senex Friese, 1909:242 ("Tanganjika–See, Madagaskar", ♀).

senex Friese, 1922:8 ("3♀ vom Tanganyikasee und 1♀ von Tamatave (im Dezember), Madagaskar" ♂?!), ? = senex Friese, 1909:242.

serripes Burmeister, 1876:156 (" . . . bei Rio Janeiro (Laranjeiras, im Garten meines Freundes Lallemant) fing . . .", ♂♀).

serripes Hedicke, 1938:189 ("1♀ (Holotypus) Iran: Bushire"), renamed hedickei Maa, 1940:131, = fenestrata (Fabricius), 1798:273, *teste* Maa, 1954:221.

virescens Lepeletier, 1841:186 ("De Cayenne", ♀).

virescens Gistel, 1857:29 ("Italien" ♀), renamed virescentis Strand, 1917:98.

viridis Smith, 1854:360 ("Hab. Brazil (Rio Tapajos)" ♂).

viridis Meade–Waldo, 1916:465 ("Sarawak: Kuching", ♀), renamed meade–waldoi Hurd, *ante* p. 136.

Literature Cited

Alfken, J. D.

1930. Die gruppe der *Xylocopa* olivieri Lep. (Hym. Apid.). Deutsche Ent Zeitschr., pp. 77–79.

Burmeister, H.

1876. Hymenopterologische Mittheilungen. 1. *Xylocopa*–Arten des La Plata–Gebietes. Stettiner Ent. Zeitg., 37:151–159.

COCKERELL, T. D. A.

1906. Some carpenter-bees from Africa. Canadian Ent., 38:364.

1907. On a collection of Australian and Asiatic bees. Bull. Amer. Mus. Nat. Hist., 23:221–236.

1909. Descriptions and records of bees.–XXIII. Ann. Mag. Nat. Hist., (8)4:393–404.

1911. The bees of the Solomon Islands. Proc. Linn. Soc. New South Wales, 36:160-178.

1930. African bees of the family Xylocopidae principally from Liberia and the Belgian Congo. Rev. Zool. Bot. Africaines, 18:294–306.

1947. Xylocopa lugubris Gerstaecker (Apoidea). Entomologist, 80:144.

CRESSON, E. T.

1878. Descriptions of new North American Hymenoptera in the collection of the American Entomological Society. Trans. Amer. Ent. Soc., 7:61–136.

DALLA TORRE, C. G. de

1896. Catalogus hymenopterorum. Leipzig, 10:202–222. *(Xylocopa)*.

DALLA TORRE. C. G. de and H. FRIESE

1894. Synonymischer katalog der europäischen sammelbienen. Ent. Nachrichten, 21:53–62.

ENDERLEIN, GUNTHER

1903. Neue und wenig bekannte afrikanische Xylocopen, besonders aus der ausbeute des Freiherrn von Erlanger in Galla und Somali. Berliner Ent. Zeitschr., 48:45–64.

1913. Zur kenntnis des Xylocopen Südamerikas und über einen zwitter von Xylocopa ordinaria. Arch. Naturgesch., Berlin, (A) 79(2):156–170.

EVERSMANN, EDUARD

1854 Beiträge zur lepidopterologie Russlands, und beschreibung einiger anderer insecten aus den südlichen Kirgisensteppen, nördlich Ufern des Aralsees und des Sir–Darja's. Moskovskoe obshchestvo ispytatelei prirody (Bull. Soc. Nat. Moscou), 26(3):174–205, 1 pl.

FABRICIUS, J. CHR.

1775. Systema entomologie. Flensburg and Leipzig, Korte, xxx + 832 pp.

1787. Mantissa insectorum sistens eorum species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus. Copenhagen, Christ. Gottl. Proft., 1:xx + 348 pp.

1793. Entomologia systematica emendata et aucta. Copenhagen, Christ. Gottl. Proft., 2:viii + 519 pp.

1798. Entomologiae systematicae supplementum. Copenhagen, Christ. Gottl. Proft., 572 pp.

1804. Systema piezatorum. Brunswick, Reichard, xiv + 15 + 440, 1–30 pp.

FRIESE, H.

1901. Die Bienen Europa's (Apidae Europaeae) nach ihren gattungen, arten und varietäten auf vergleichend morphologisch-biologischer grundlage. Innsbruck: C. Lampe, 6:192–279 (Xylocopinae).

1903. Neue arten der bienengattung Xylocopa Latr. aus der Neotropischen und Orientalischen Region (Hym.). Zeitschr. f. Hymenopterologie und Dipterologie, 3:202–208.

1908. Neue bienenarten aus Ostafrika. Deutsche Ent Zeitschr., pp. 567–572.

1909. Die bienen Afrikas nach dem stande unserer heutigen kenntnisse. *In* Schultze, Leonhard. Zoologische und Anthropologische ergebnisse einer forschungsriese in westlichen zentral Südafrika ausgeführt in den jahren 1903-1905, Band 2. Denkschr. Med.-Naturwiss. Gesellsch., Jena, 14:83–476, pls. IX–X (in color), 19 maps, 1 text fig.

1910. Neue bienenarten aus Japan. Verhandl. der K. K. Zool.–Bot. Gesellsch., 60:404–410.

1911. Neue arten der bienengattung *Xylocopa* (Hym.). Deutsche Ent Zeitschr., pp. 685–687.

1916. Zur bienenfauna von Costa Rica. (Hym.). Stettiner Ent. Zeitg., 77:287–348.

1922. III. Nachtrag zu "Bienen Afrikas". Zool. Jahrb. Abt. Syst., Jena, 46:1–42.

GISTEL, JOHANNES

1857. Achthundert und zwanzig neue oder unbeschriebene wirbellose Thiere. Verlag der Schorner'schen Buchhandlung. Druck von J. F. Rietsch in Landshut, 94 pp.

GRIBODO, GIOVANNI

1894. Note imenotterologiche. Nota II. Nuovi generi e nuove specie di imenotteri antofili ed osservazioni sopra alcune specia gia conosciute. Bull. Soc. Ent. Italiana, 26:262–314.

HEDICKE, H.

1923. Nomina nova. IV. Deutsche Ent. Zeitschr., p. 431.

1938. Uber einige apiden vom Hindukusch (Hym.). Deutsche Ent. Zeitschr., pp. 186–196, 3 figs.

ILLIGER, KARL

1806. William Kirby's familien der bienenartigen insekten mit zusätzen, nachweisungen und bemerkungen. Magazin für Insektenkunde, Braunschweig, Reichard, 5:28–173.

LATREILLE, [P. A.]

1809. Insectes de l'Amérique equinoxiale recueillis pendant le voyage de MM. de Humboldt et Bonpland, et décrits par M. Latreille. *In* Humboldt, Al. de and A. Bonpland. Recueil d'observations de zoologie et d'anatomie comparée, faites dans l'Ocean Allantique, dans l'interieur du nouveau continent et dans la mer du Sud pendant les années, 1799, 1800, 1801, 1802 et 1803. Paris. Zoology, 2:9–138, illustr. in accompanying atlas.

LEPELETIER, DE SAINT-FARGEAU, M. LE COMPTE AMEDEE LOUIS MICHEL AND A. SERVILLE

1828. *Lestis*. *In* Latreille, P. A., Encyclopédie méthodique. Histoire naturelle. [vol. 10] Entomologie, ou histoire naturelle des crustacés, des arachnides et des insectes, ["Par"-"Zyg"]. Insectes, Paris, 7:795, 799–800. (1825)

LEPELETIER DE SAINT-FARGEAU, M. LE COMPTE AMEDEE LOUIS MICHEL

1841. Histoire naturelle des insectes. Hyménoptères. Suites à Buffon. Paris, Roret, 2:1–680.

LEVEQUE, NORMA

1928. Carpenter bees of the genus *Mesotrichia* obtained by the American Museum Congo Expedition, 1909-1915. Amer. Mus. Novitates, no. 300: 1–23, 29 figs.

LIEFTINCK, M. A.

1955. The carpenter-bees (*Xylocopa* Latr.) of the Lesser Sunda Islands and Tanimbar (Hymenoptera, Apoidea). Verh. Naturf. Ges. Basel, 66:5–32, 20 figs.

1957. Revision of the carpenter-bees (*Xylocopa* Latr., subgenus *Maiella* Michener of the Papuan Region. Nova Guinea, new ser., 8(2): 325–376. 63 figs.

LINNAEUS, C.

1758. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, locis. Editio decima, reformata. Stockholm, 1:824 + iii pp.

1767. Systema naturae. Editio duodecima, reformata, 12:901–1068.

LUCAS, PIERRE HIPPOLYTE

1846. Histoire naturelle des animaux articulés. *In* Exploration scientifique de l'Algérie pendant les années 1840, 1841, 1842. Zoology 3(3) Insectes, 527 pp. 40 pls. (1849).

MAA, T. (MAA TSING-CHAO)

1938. The Indian species of the genus *Xylocopa* Latr. (Hymenoptera). Records Indian Mus., Calcutta, 40:265–329, 14 text figs.

1939. On some *Xylocopa*–species from the Sunda Islands (Hymen.: Xylocopidae). Treubia, Buitenzorg, 17:73–98.

1940. On the nomenclature of certain *Xylocopa*–species (Hymen.). Notes d'Ent. Chinoise, Shanghai, 7:131–138.

1954. The 3rd Danish Expedition to Central Asia. Zoological results 14. The Xylocopine bees (Insecta) of Afghanistan. Vidensk. Meddel. Dansk Naturhist. For. Kobenhavn, 116:189–231, 15 figs.

MAIDL, FRANZ

1912. Die Xylocopen (Holzbienen) des Wiener Hofmuseums. Ein beitrag zu einer monographie dieser gattung. Ann. K. K. Naturhist. Hofmus., Wien, 26:249–330, 2 pls., 63 text figs.

MEADE-WALDO, GEOFFREY

1916. Notes on the Apidae (Hymenoptera) in the collection of the British Museum, with descriptions of new species. Ann. Mag. Nat. Hist., (8)17:448–470.

MEUNIER, FERNAND
1892. Observations sur quelques apides d'Ecuador. Jorn. Acad. Sci. Math. Phys. e Nat. Lisboa, (2)2:63–65.

MICHENER, CHARLES D.
1954. Bees of Panamá. Bull. Amer. Mus. Nat. Hist., 104:1–176, 155 figs., 3 tables.

MOURE, J. S.
1949. Notas sôbre algunas abejas de Tacanas, Tucumán, Argentina. II. (Hymenopt. Apoidea). Rev. Ent., Rio de Janeiro, 20(1–3): 437–460, 2 pls.

OLIVIER, GUILLAUME ANTOINE
1789. Abeille. *In* Encyclopédie methodique. Histoire naturelle. Publiée par une societé de gens de lettres, de savans et d'artistes. Insectes [Introduction–"Bom."] Paris and Liege, 4:cclxxxviij + ccclxxiij + 331 pp

PEREZ, J.
1901. Contribution à l'étude des Xylocopes. Actes Soc. Linn. Bordeaux, 56 (ser. 6, vol. 6):1–128.

REICHE, [L.] AND [L.M.H.] FAIRMAIRE
1847. Ordre des hymenoptères (Zoology:Entomologie, pp. 451–465). *In* Ferret, [A.] and [—] Galinier, Voyage en Abyssinie dans le provinces du Tigre, du Samen et de l'Ahmara dédié A.S.A.R. Monseigneur le Duc de Nemours. Paris: Paulin, Libraire-Editeur, 3:536 pp.

SANDHOUSE, GRACE A.
1943. The type species of the genera and subgenera of bees. Proc. U. S. Natl. Mus., 92:519–619.

SCHULZ, W. A.
1906. Spolia hymenopterologica. Paderborn, Junfermann, iii + 356 pp., 1 pl., 11 text figs.

SMITH, FREDERICK
1854. Catalogue of hymenopterous insects in the collection of the British Museum. London, pt. 2, Apidae, pp. 199–465, pls. VII–XII.
1874. Monograph of the genus Xylocopa, Latr. Trans. Ent. Soc. London, pp. 247–302.

SPINOLA, MAXIMILIEN
1838. Compte rendu des Hyménoptères recueillis par. M. Fischer pendant son voyage en Égypte, et communiqués par M. le Docteur Waltl a Maximilien Spinola. Ann. Soc. Ent. France, 7:437–546.

STARCKE, A.
1953. There will never be peace in nomenclature. Ent. Berichten, 14:205–206.

STRAND, EMBRIK
1917. Übersicht der in GISTEL's „Achthundert und zwanzig neue oder unbeschriebene wirbellose Thiere" (1857) behandelten

insekten. Arch. Naturgesch., Berlin, (A)85(5):75–101. (1916)

VACHAL, J.

1899-1900. Essai d'une revision synoptique des espèces Européenes et Africaines. Miscell. Ent., 7:89–112, 145–160 (1899); 8: 106–108 (1900).

1910. Diagnoses d'insectes nouveau recueillis dans le Congo belge par le Dr. Sheffield-Neave (Hymenoptera, Apidae). Ann. Soc. Ent. Belgique, 54:306–328.

1922. Mellifères. *In* Voyage de M. Le Baron Maurice de Rothschild en Éthiopie et en Afrique Orientale Anglaise (1904-1905). Resultáts scientifiques, animaux articulés. Deuxieme Partie. Paris, pp. 983–996, figs.

VAN DER VECHT, J.

1953. The carpenter bees (*Xylocopa* Latr.) of Celebes, with notes on some other Indonesian *Xylopoca* species. Idea, Bogor, 9:57–69, 1 pl. Also publ. Org. Sci. Res. Indonesia Djakarta, no. 37: 2–14, 1 pl.

VITZTHUM, H. GRAF

1930. Acarologische beobachtungen. (14. Reihe). Zool. Jahrb. Abt. Syst.. Jena, 59 (2/3):281–350, 41 figs.

WESTWOOD, J. O.

1838. Description of a new genus of exotic bees. Trans. Ent. Soc. London, 2(2):112–113.

YU, FENG-LING

1954. The carpenter or Xylocopine bees of Formosa. Mem. College Agric. Natl. Taiwan Univ., Taipeh, 3(3):1–22, 18 figs. [In Chinese with English summary].

A NEW NAME PROPOSED IN THE GENUS THEREVA

(Diptera: Therevidae)

In my revision of the Therevidae (1923)[1], I proposed in the genus *Thereva* the name *pygmaea* for a small, hairy-faced therevid fly found in the mountains of southern California. It is one of a curious little group of related species, along with *melanoneura* Loew, *anomala* Adams and *xanthobasis* James.

Paul H. Arnaud, Jr., has called my attention to an older use of the name *Thereva pygmaea* in what is now the family Tachinidae. *Thereva* is an ancient name and was first used, like *Bibio* and *Musca*, in a very broad sense. *Thereva pygmaea* Fallén is the genotype of *Catharosia* Rondani (1820. Dipt. Suec. Rhiz., 4).

I propose the name *nana* for this little therevid fly, described as *T. pygmaea* (pages 89–90).—FRANK R. COLE, *University of California, Berkeley.*

[1] Cole, F. R., 1923. A Revision of the Therevidae. Proc. U.S. Nat. Mus. 62:1-140.